EPA Region 7 TMDL Review

TMDL ID	133	*Water Body ID*	1505
Water Body Name	East Whetstone Creek		
Pollutant	Biochemical Oxygen Demand (BOD)		
Tributary			
State	MO *HUC*	10290201	
Basin	Upper Gasconade Basin		
Submittal Date	12/31/2001	*Completion Date*	1/7/2002
Approved	Yes		

Submittal Letter

State submittal letter indicates final TMDL(s) for specific pollutant(s)/ water(s) were adopted by the state, and submitted to EPA for approval under section 303(d) of the Clean Water Act.

Letter received December 31, 2001, formally submitting this TMDL for approval under Section 303(d) of the Clean Water Act.

Water Quality Standards Attainment

The water body's loading capacity for the applicable pollutant is identified and the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources is described. TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.

The allowable seasonable loads of BOD that will meet the in-stream 5 mg/L dissolved oxygen (DO) water quality criterion are allocated and were calculated using the QUAL2E water quality model. Calibration and validation of the QUAL2E model runs help to ensure that allocations and the margin of safety will result in attainment of water quality standards (WQS).

Numeric Target(s)

Submittal describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative criteria. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, site specific if possible, was developed from a narrative criterion and a description of the process used to derive the target is included in the submittal.

All applicable WQS are described as well as all beneficial uses and applicable criteria. DO cannot be allocated, therefore, DO is linked to BOD for allocation purposes. The target for BOD was calculated using the QUAL2E model; the input deck for the model, field observations in East whetstone Creek, and NPDES effluent data were provided to EPA with the draft TMDL. Ammonia was also modeled and a target protective of WQS was identified, although the segment was not identified on the 303(d) list as impaired by ammonia.

Link Between Numeric Target(s) and Pollutant(s) of concern

An explanation and analytical basis for expressing the TMDL through surrogate measures (e.g., parameters such as percent fines and turbidity for sediment impairments, or chlorophyll-a and phosphorus loadings for excess algae) is provided, if applicable. For each identified pollutant, the submittal describes analytical basis for conclusions, allocations and margin of safety that do not exceed the load capacity.

BOD is the parameter used to determine the impact sewage wastewater will cause on DO levels in a receiving stream, however, there is not a BOD criterion identified in the MO WQS regulations. The TMDL describes analytical basis for conclusions, allocations and MOS that do not exceed the loading capacity for DO in the classified section of East Whetstone Creek.

Source Analysis

Important assumptions made in developing the TMDL, such as assumed distribution of land use in the watershed, population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources, are described. Point, non point and background sources of pollutants of concern are described, including magnitude and location of the sources. Submittal demonstrates all significant sources have been considered.

The Mountain Grove East and West Waste Water Treatment Facilities (WWTFs) are the only point sources contributing to the impairment; the 7Q10 flow above the facilities is zero which means the creek is predominantly effluent created as a result of the discharges coming from the two WWTFs. Magnitude and location of these sources is provided. There are no non-point souces contributing to the impairment. Submission includes a historic background of the sub-basin with land use practices and current land use map.

Allocation

Submittal identifies appropriate wasteload allocations for point, and load allocations for nonpoint sources. If no point sources are present the wasteload allocation is zero. If no nonpoint sources are present, the load allocation is zero.

Allocations were determined through the use of the QUAL2E water quality model.

WLA Comment

The WLA for CBOD is 174.8 lb/day in the summer; 262.2 lb/day in the winter. NPDES permit conditions will require re-aeration of the discharged effluent in order to maintain an effluent DO concentration of no less than 8 mg/L.

LA Comment

The LA is zero.

Margin of Safety

Submittal describes explicit and/or implicit margin of safety for each pollutant. If the MOS is implicit, the conservative assumptions in the analysis for the MOS are described. If the MOS is explicit, the loadings set aside for the MOS are identified and a rationale for selecting the value for the MOS is provided.

The MOS for CBOD is explicit and is 19.4 lb/day in the summer and 29.1 lb/day in the winter.

Seasonal Variation and Critical Conditions

Submittal describes the method for accounting for seasonal variation and critical conditions in the TMDL(s).

Seasonal variation was simulated in the QUAL2E model via the use of lower water temperatures, lower ammonia and BOD decay coefficients and adjustments to seasonal flow values. The 7Q10 flow was used as the critical condition.

Public Participation

Submital describes public notice and public comment opportunity, and explains how the public comments were considered in the final TMDL(s).

Six public meetings to allow input from the public on impaired waters were held between Aug. 18 and Sept. 22, 1999. The TMDL went on a 30-day public notice on November 9, 2001.

Monitoring Plan for TMDL(s) Under Phased Approach

The TMDL identifies the monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of WQS, and a schedule for considering revisions to the TMDL(s) (where phased approach is used).

NPDES permit monitoring will be conducted on a regular basis to assess compliance with Missouri WQS.

Reasonable assurance

Reasonable assurance only applies when reduction in nonpoint source loading is required to meet the prescribed waste load allocations.